

WHAT IS CLAIMED IS:

1. A method for dynamically configuring a redundant area of a page associated with a physical block of a non-volatile memory of a memory system, the method comprising:  
5 determining when at least one byte associated with the redundant area is to be altered, the at least one byte including error correction code (ECC) information associated with a first ECC algorithm; and  
altering the at least one byte when it is determined that the at least one byte is to be altered, wherein altering the at least one byte includes altering the at least one byte to  
10 include ECC information associated with a second ECC algorithm.
2. The method of claim 1 wherein the first ECC algorithm is a 1-bit ECC algorithm.
3. The method of claim 2 wherein when the at least one byte includes ECC  
15 information associated with the first ECC algorithm, the at least one byte includes approximately three bytes arranged to be used to correct an error associated with a first group of bytes of a data area of the page, approximately three bytes arranged to be used to correct an error associated with a second group of bytes of the data area, and  
approximately two bytes arranged to be used to correct an error associated with the  
20 redundant area.
4. The method of claim 2 wherein the second ECC algorithm is a 2-symbol ECC algorithm.
- 25 5. The method of claim 4 wherein when the at least one byte includes ECC information associated with the second ECC algorithm, the at least one byte includes approximately five bytes arranged to be used to correct at least one error associated with the data area of the page, and approximately three bytes arranged to be used to correct at least one error associated with the redundant area.  
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6. The method of claim 1 further including:  
obtaining at least one bit which is arranged to indicate a number of times the  
physical block has been erased from the redundant area, wherein determining when the at  
least one byte is to be altered includes determining when the at least one bit is  
5 approximately equal to a predetermined value.

7. The method of claim 1 wherein the at least one bit includes information  
associated with an erase count of the physical block.

10 8. The method of claim 1 wherein determining when the at least one byte associated  
with the redundant area is to be altered includes determining when a number of erase  
cycles undergone by the physical block has reached a threshold level.

9. The method of claim 1 wherein altering the at least one byte includes storing the  
15 at least one byte which includes ECC information associated with the second ECC  
algorithm in the redundant area.

10. The method of claim 1 wherein the non-volatile memory system is one of an  
embedded system, a Smart Media card, a Compact Flash card, a Secure Digital Card, and  
20 a MultiMedia card.

11. A memory system comprising:  
a non-volatile memory, the non-volatile memory including a physical block,  
wherein the physical block has a page with a data area and a redundant area;  
25 code devices that cause a determination to be made as to when at least one byte  
associated with the redundant area is to be altered, the at least one byte including error  
correction code (ECC) information associated with a first ECC algorithm;  
code devices that cause the at least one byte to be altered when it is determined  
that the at least one byte is to be altered, wherein the code devices that cause the at least

one byte to be altered include code devices that cause the at least one byte to be altered include ECC information associated with a second ECC algorithm; and  
a memory section that stores the code devices.

5 12. The memory system of claim 11 wherein the first ECC algorithm is a 1-bit ECC algorithm.

13. The memory system of claim 12 wherein when the at least one byte includes ECC information associated with the first ECC algorithm, the at least one byte includes  
10 approximately three bytes arranged to be used to correct an error associated with a first group of bytes of a data area of the page, approximately three bytes arranged to be used to correct an error associated with a second group of bytes of the data area, and approximately two bytes arranged to be used to correct an error associated with the redundant area.

15 14. The memory system of claim 12 wherein the second ECC algorithm is a 2-symbol ECC algorithm.

15. The memory system of claim 14 wherein when the at least one byte includes ECC information associated with the second ECC algorithm, the at least one byte includes  
20 approximately five bytes arranged to be used to correct at least one error associated with the data area of the page, and approximately three bytes arranged to be used to correct at least one error associated with the redundant area.

25 16. The memory system of claim 11 further including:  
code devices that cause at least one bit which is arranged to indicate a number of times the physical block has been erased to be obtained from the redundant area, wherein the code devices that cause a determination to be made as to when the at least one byte is to be altered include code devices that cause a determination to be made as to when the at  
30 least one bit is approximately equal to a predetermined value.

17. The memory system of claim 11 wherein the at least one bit includes information associated with an erase count of the physical block.

5 18. The memory system of claim 11 wherein the code devices that cause a determination to be made as to when the at least one byte associated with the redundant area is to be altered include code devices that cause a determination to be made as to when a number of erase cycles undergone by the physical block has reached a threshold level.

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19. The memory system of claim 11 wherein the code devices that cause the at least one byte to be altered include code devices that cause the at least one byte which includes ECC information associated with the second ECC algorithm to be stored in the redundant area.

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20. The memory system of claim 11 wherein the non-volatile memory system is one of an embedded system, a Smart Media card, a Compact Flash card, a Secure Digital Card, and a MultiMedia card.

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21. A memory system comprising:

a non-volatile memory, the non-volatile memory including a physical block, wherein the physical block has a page with a data area and a redundant area;

means for determining when at least one byte associated with the redundant area is to be altered, the at least one byte including error correction code (ECC) information

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associated with a first ECC algorithm; and

means for altering the at least one byte when it is determined that the at least one byte is to be altered, wherein altering the at least one byte includes altering the at least one byte to include ECC information associated with a second ECC algorithm.

22. The memory system of claim 21 wherein the first ECC algorithm is a 1-bit ECC algorithm and wherein when the at least one byte includes ECC information associated with the first ECC algorithm, the at least one byte includes approximately three bytes arranged to be used to correct an error associated with a first group of bytes of a data area of the page, approximately three bytes arranged to be used to correct an error associated with a second group of bytes of the data area, and approximately two bytes arranged to be used to correct an error associated with the redundant area.

23. The memory system of claim 22 wherein the second ECC algorithm is a 2-symbol ECC algorithm, and wherein when the at least one byte includes ECC information associated with the second ECC algorithm, the at least one byte includes approximately five bytes arranged to be used to correct at least one error associated with the data area of the page, and approximately three bytes arranged to be used to correct at least one error associated with the redundant area.

24. The memory system of claim 21 further including:  
means for obtaining at least one bit which is arranged to indicate a number of times the physical block has been erased from the redundant area, wherein the means for determining when the at least one byte is to be altered include means for determining when the at least one bit is approximately equal to a predetermined value.

25. The memory system of claim 21 wherein the at least one bit includes information associated with an erase count of the physical block.

26. The memory system of claim 21 wherein the non-volatile memory system is one of an embedded system, a Smart Media card, a Compact Flash card, a Secure Digital Card, and a MultiMedia card.

27. A method for processing a page associated with a physical block of a non-volatile memory of a memory system, the method comprising:

determining when at least one byte associated with a first error correction code (ECC) algorithm is to be altered to be associated with a second ECC algorithm, the at least one byte being stored in a redundant area associated with the page; and

5 dynamically configuring the redundant area when it is determined that the at least one byte is to be altered such that the at least one byte is altered to be associated with the second ECC algorithm.

28. The method of claim 27 wherein the first ECC algorithm is a 1-bit ECC algorithm and the second ECC algorithm is a 2-symbol ECC algorithm.

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29. The method of claim 28 wherein when the at least one byte associated with the first ECC algorithm includes approximately three bytes arranged to be used to correct an error associated with a first group of bytes of a data area of the page, approximately three bytes arranged to be used to correct an error associated with a second group of bytes of the data area, and approximately two bytes arranged to be used to correct an error associated with the redundant area.

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30. The method of claim 28 wherein when the at least one byte is altered to be associated with the second ECC algorithm, the at least one byte includes approximately five bytes arranged to be used to correct at least one error associated with the data area of the page, and approximately three bytes arranged to be used to correct at least one error associated with the redundant area.

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31. The method of claim 27 wherein determining when the at least one byte is to be altered includes determining when an indicator stored in the redundant area indicates that the at least one byte is to be altered.

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32. The method of claim 31 wherein the indicator is arranged to indicate a number of times the physical block has been erased, and wherein when the indicator is

approximately equal to a predetermined value, the indicator indicates that the at least one byte is to be altered.

33. A method for dynamically configuring a redundant area of a page associated with a physical block of a non-volatile memory of a memory system, the method comprising:  
5 determining when a set of bits in the redundant area is to be altered, the bits including error correction code (ECC) information associated with a first ECC algorithm, wherein the set of bits are substantially grouped in a first configuration; and  
altering the set of bits when it is determined that the set of bits is to be altered,  
10 wherein altering the set of bits includes altering the set of bits to include ECC information associated with a second ECC algorithm and grouping the set of bits in a second configuration.

34. The method of claim 33 wherein the set of bits includes approximately eight bytes  
15 and the first configuration includes a first subset of approximately three bytes, a second subset of approximately three bytes, and a third subset of approximately two bytes.

35. The method of claim 34 wherein the second configuration includes a first  
grouping of approximately five bytes and a second grouping of approximately three  
20 bytes.

36. The method of claim 33 wherein the first ECC algorithm is a 1-bit ECC algorithm and the second ECC algorithm is a 2-symbol ECC algorithm.

25 37. The method of claim 33 wherein determining when the set of bits is to be altered includes determining when an indicator stored in the redundant area indicates that the set of bits is to be altered.

38. The method of claim 37 wherein the indicator is arranged to indicate a number of  
30 times the physical block has been erased, and wherein when the indicator is

approximately equal to a predetermined value, the indicator indicates that the set of bits is to be altered.